

REMARKS

Claims 1-9, 11-13, 15-24 and 27 are now pending in this application. Claims 10 and 14 have been cancelled without prejudice or disclaimer. Applicants have amended claims 1, 6 and 11-13 for purposes of clarification. Support for the claim amendments can be found, for example, in original claim 10 and in the Specification¹ at ¶¶ 0029 and 0034. No new matter has been added by the claim amendments. Applicants respectfully request reconsideration of all outstanding rejections in view of the preceding amendment and following remarks.

Claim Rejections Under 35 U.S.C. § 103

The Office Action rejected claims 1-24 and 27 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent Application Publication No. 2002/0026108 by Colvin et al. (“Colvin”) in view of U.S. Patent No. 6,402,689 to Scarantino et al. (“Scarantino”) and further in view of U.S. Patent Application Publication No. 2003/0181794 to Rini et al. (“Rini”). Applicants respectfully traverse these rejections.

Independent Claim 1

Claim 1 is patentable over the combination of Colvin, Scarantino and Rini because these references, considered alone or in combination, fail to disclose or suggest each and every feature recited in amended claim 1.

For instance, the combination of Colvin, Scarantino and Rini does not disclose or suggest “a substrate including a circuit component section and a coil section that is separate from the circuit component section,” as required by claim 1. The Office Action relies on Colvin’s disclosure of a ceramic substrate 70 in Fig. 1 and Scarantino’s alleged disclosure of a “ferrite

¹ Unless otherwise stated, citations to the Specification refer to U.S. Patent Application Publication No. 2004/0206916.

substrate” in Col. 24, lines 46-49, but recognizes that “the combination of Colvin and Scarantino fail [*sic*] to teach a circuit component section and a coil section.” Office Action mailed September 4, 2009 at 3-4. The Office Action then relies on Rini as teaching the claimed “circuit component section and ... coil section,” but neglected to consider that the recited “coil section” and claimed “circuit component section” were claimed as being included on “a substrate.” According to the MPEP, “[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.” MPEP 2143.03 quoting *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Because the Office Action failed to consider “a substrate including a circuit component section and a coil section” in claim 1, the rejection is improper.

Colvin, Scarantino and Rini references, considered alone or in combination, also do not disclose “a substrate including a circuit component section and a coil section that is separate from the circuit component section,” as required by claim 1. As noted above, the Office Action recognized that Colvin and Scarantino do not disclose or suggest this claimed feature. Rini also fails to disclose or suggest “a substrate including a circuit component section and a coil section,” as required by claim 1, because the antenna portion 122 and PCB/IC chip portion 124 of Rini are not “includ[ed]” on “a substrate.” Instead, Rini discloses antenna portion 122 and PCB/IC 124 as separate components that are “joined ... at a juncture 121.” Rini at ¶0072 and Fig. 3. Because the antenna portion 122 and PCB/IC chip 124 of Rini are “joined ... at a juncture 121,” Rini does not disclose or suggest a substrate including the antenna portion 122 and PCB/IC chip 124 of Rini. Accordingly, none of the references, taken alone or in combination, disclose or suggest “a substrate including a circuit component section and a coil section that is separate from the circuit component section,” as required by claim 1.

The Office Action asserts that “it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination or [*sic*] Colvin and

Scarantino with the sensor configuration of Rini, since it has been held that rearranging of parts of an invention involves only routine skill in the art.” Office Action mailed September 4, 2009 at 4 (citing *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950)). The Office Action’s assertion appears to be based on a mistaken understanding of *In re Japikse* because, according to MPEP 2144.04(VI)(C):

“The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims ... is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant’s specification, to make the necessary changes in the reference device.” *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).

Here, the Office Action cannot rely on the mere fact that a worker in the art could rearrange the circuit components and coil of the combination of Colvin and Scarantino into circuit component and coils sections included on the substrate of the combination of Colvin and Scarantino because nothing in the prior art, including Rini, suggests or provides a reason for doing so. To the contrary, Scarantino, in Figs. 7, 8A and 8B, discloses a coil 58 and circuit components 125 sharing the same section of substrate 125P. And further to the contrary, as previously discussed, Rini, in Fig. 3, discloses separate circuit component and coil sections (124 and 122 respectively) joined by a juncture 121 and not included on a substrate. Thus, none of the Colvin, Scarantino and Rini references, considered alone or in combination, disclose or suggest “a substrate including a circuit component section and a coil section that is separate from the circuit component section,” as required by claim 1, and the rejection of claim 1 is therefore improper.

In addition, the rejection of claim 1 is improper because the combination of Colvin, Scarantino and Rini does not disclose or suggest “a conductor formed around said coil section of said substrate [formed substantially of ferrite material] and extending over one of said main

surfaces and side surfaces in a coil pattern,” as required by claim 1. The Office Action asserts that this claimed feature is found in a reconstruction of the claimed invention achieved through the Office Action’s modification of Colvin with mixed and matched portions of alternative embodiments of Scarantino and an embodiment of Rini in a manner unsupported by the prior art.

Colvin does not disclose this claimed feature and instead discloses inductors 40 and 42 formed on a ceramic substrate 70. *See* Figure 1. Appropriately, the Office Action recognized that “Colvin fails to teach a ferrite substrate and said conductor extends over one of said main surfaces and side surfaces in a coil pattern” and “fail[s] to teach a coil section wherein a conductor is formed around said coil section.” Office Action mailed September 4, 2009 at 3-4.

Scarantino discloses a “transmitter coil 58 [that] is substantially circumferentially layered to surround the electronics 125” and that “cylindrically extends to surround a portion of the PCB or IC [chip] 125[p].” *See* Scarantino at col. 23, lines 52-54; col. 24, lines 11-16; and Figures 7, 8A and 8B. Scarantino states that either coil 58 can be a “separate copper wire wrapped coil conventionally used” or, alternatively, “the coil 58 can be integrated into the circuit board itself via a ferrite substrate.” *See* Scarantino at col. 24, lines 44-49. As a result, on one hand, Scarantino discloses a wrapped coil embodiment in which coil 58 is wrapped around a portion of the PCB. On the other hand, Scarantino alternatively may suggest an integrated coil embodiment in which coil 58 is integrated into the PCB itself via a ferrite substrate.

The Office Action begins modifying Colvin by “[s]ubstituting the ferrite substrate taught by Scarantino [for] the substrate taught by Colvin,” which, according to the Office Action, “would have been obvious since the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.” Office Action mailed September 4, 2009 at 3. No explanation is provided as to what predictable results

the Office Action believes would have been yielded by replacing the ceramic substrate of Colvin with the ferrite substrate of Scarantino.

By substituting the ferrite substrate of Sacarantino into the printed circuit device of Colvin, the Office Action modified the printed circuit device of Colvin with the embodiment of Scarantino in which “coil 58 [is] **integrated into** the circuit board itself via a ferrite substrate.” *See* Scarantino at col. 24, lines 44-49 (emphasis added). In this alleged integrated coil embodiment of Scarantino, coil 58 is not “formed around” the circuit board in which it is integrated and does not “extend[] over one of said main surfaces and side surfaces in a coil pattern,” as required by claim 1.

The Office Action, in apparent recognition of this deficiency in the integrated coil embodiment of Scarantino, attempts to overcome it by “modify[ing] Colvin with a ferrite substrate with an integrated coil combined with a previous teaching of an external conductor in order to increase signal strength [which is proportional to the area of the coil].” *See* Office Action mailed September 4, 2009 at 4. In other words, after modifying Colvin by substituting the ferrite substrate of Scarantino into which a coil is integrated, the Office Action now proposes to modify the modification by replacing the coil integrated into the ferrite substrate with a conventional external coil but still keeping the ferrite substrate.

Specifically, Scarantino states that, “[a]lternatively to the separate copper wire wrapped coil conventionally used to form the coil 58, the coil can be integrated into the circuit board itself via a ferrite substrate (a flux concentrator).” Scarantino at col. 24, lines 46-49. Accordingly, Scarantino suggests the ferrite substrate only as a means by which “coil 58 can be integrated into the circuit board itself” as an alternative to the conventional external coil. *See Id.* The modification to the modification to Colvin proposed by the Office Action is illogical because it separates the ferrite substrate of Scarantino from its disclosed purpose of enabling coil 58 to “be

integrated into the circuit board itself.” *Id.* Therefore, because a conventional external coil wrapped around a ferrite substrate was neither disclosed nor suggested by Scarantino, the rejection of claim 1 set forth in the Office action is improper.

As none of Colvin, Scarantino and Rini references, alone or in combination, disclose or suggest “a conductor formed around said coil section of said substrate [formed substantially of ferrite material] and extending over one of said main surfaces and side surfaces in a coil pattern,” as required by claim 1, Applicants respectfully request the withdrawal of the rejection of claim 1 for this separate and independent reason.

Claims 2-11 and 27

Claims 2-9, 11, 24 and 27 depend on claim 1 and are patentable over the combination of Colvin, Scarantino and Rini for at least the same reasons explained above in regard to claim 1 as well as for the additional features they recite. Applicants, therefore, respectfully request the withdrawal of the rejection of claims 2-11 and 27.

Furthermore, the rejections of claims 2-6 are improper because the combination of Colvin, Scarantino and Rini does not disclose or suggest that a “circuit component lead is routed through a via formed in said substrate,” as required by claims 2-6. Claim 24 similarly requires “a via formed in said substrate.”

The Office Action admits that “Colvin fails to specifically teach [a] circuit component ... lead that is routed through a via formed in said substrate.” Office Action mailed September 4, 2009 at 4. Scarantino and Rini also do not disclose this feature. Nevertheless, the Office Action alleges that “those skilled in the art appreciate that substituting surface mount components with through-hole components would have yielded predictable results to one of ordinary skill in the art at the time of the invention.” *Id.* Because the Office Action has provided no support for this

position, and none of the cited references disclose or suggest doing so, the rejections of claims 2-6 and 24 are improper for this additional reason.

Independent Claim 12

Claim 12 is patentable over the combination of Colvin, Scarantino and Rini because claim 12 recites subject matter neither disclosed nor suggested by the references. Similar to claim 1, amended claim 12 recites “a substrate ... includ[ing] a coil section and a separate circuit component section” and “forming the inductive coil around said coil section of said substrate [formed substantially of ferrite material].” For at least the reasons stated above with respect to claim 1, the combination of Colvin, Scarantino and Rini fails to disclose or suggest at least these features of claim 12. Accordingly, Applicants respectfully request the withdrawal of the rejection of claim 12.

Independent Claim 13

Claim 13 is patentable over the combination of Colvin, Scarantino and Rini because claim 13 recites subject matter neither disclosed nor suggested by the references. Similar to claim 1, claim 13 recites “a substrate including a circuit component section and a coil section that is separate from the circuit component section” and “said coil being formed around said coil section of said substrate [formed substantially of ferrite material].” For at least the reasons explained above in regard to claim 1, the combination of Colvin, Scarantino and Rini fails to disclose or suggest these features of claim 13. Accordingly, Applicants respectfully request the withdrawal of the rejection of claim 13.

Claims 15 and 17-23

Claims 15 and 17-23 depend on claim 13 and are patentable over the combination of Colvin, Scarantino and Rini for at least the same reasons explained above in regard to claim 13

as well as for the additional features they recite. Applicants, therefore, respectfully request the withdrawal of the rejection of claims 15 and 17-23.

CONCLUSION

In view of the above, Applicants respectfully submit that all objections have been overcome and that the application is now in condition for allowance. If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

Respectfully submitted,

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